REMARKS

There are 20 claims remaining in this application. Claims 3 and 13 have been cancelled. Claims 1, 12 and 16 are independent. New claim 21 is dependent from claim 16 and new claim 22 is dependent from claim 5.

Briefly, the Applicant's invention comprises a liquid tight connector for non-metallic flexible conduit. The connector is formed of one piece molded thermoplastic and includes a smooth wall cylindrical sleeve and a ferrule skirt coaxial with the sleeve. The ferrule skirt includes a cylindrical inner wall whereby a channel having a blind end is defined by the sleeve and the inner wall.

A buttress thread is formed on the inner wall with the thread projecting radially into the channel.

An end of a length of non-metallic conduit is slipped over the end of the sleeve and into to the channel. Thereafter, the conduit and connector are rotated relative to one another. The buttress thread bites into the outer wall of the conduit and draws the conduit into the channel.

The inner end of the sleeve is outwardly flared toward the cylindrical inner wall with the outward flare being axially registered with a portion of the thread. The end portion of the conduit is tightly compressed at the flare and its outer surface is urged against the cylindrical wall and deforms around the thread portion to assure a liquid tight seal which is resistant to separation.

Due to the strength of the buttress thread engagement and the increased surface area of thread engagement resulting from the placement of the buttress thread on the cylindrical inner wall, the conduit may be rotated relative to the connector without the application of undue force and the height of the buttress threads can be reduced to less than 1.0 mm.

The Cox Reference

The Cox reference discloses a connector for flexible conduit which includes a metallic coil interior. The metallic coil interior provides a thread form which is duplicated on a connector insert 20 so that when the insert is inserted into the end of the conduit it meshes with the threads and when turned, the conduit is drawn into a tapered compression chamber (Column 4, lines 7 – 16).

Far from constituting a one piece structure, the Cox connector is made up of four main parts, an outer housing 16, an inner housing 18, an insert 20 and a thread form 22 (Column 2, lines 18 – 20).

It is also significant that the inner housing 18 does not have a cylindrical wall but is tapered throughout its length (Column 2, lines 31 – 33) to form he tapered compression chamber.

The employment of multiple components, rather than a unitary structure is evident throughout the various embodiments of Cox. For example, the FIG. 11 embodiment, which employs some thermoplastic components, requires a separate metal pilot 142 in the nature of an

insert (Column 5, line 11). Significantly, any outwardly flared portion of the pilot is not registered with the thread formed in the tapered area.

Applicant's employment of a unitary one-piece structure not only results in manufacturing cost savings, but significantly eliminates seams and joints for liquid penetration. For example, Cox requires an annular seal ring 45 (Column 2, lines 54 – 56).

The Claims

Claim 1 has been amended to more clearly define Applicant's invention and sets forth that Applicant's connector comprises a one piece unitary thermoplastic body, that the ferrule skirt includes a cylindrical inner wall and that the connector includes an annular cylindrical channel, as opposed to the tapered compression chamber of Cox.

Claim 1 further defines the invention by specifying that the sleeve includes an outward flare extending toward the cylindrical inner wall and that at least a portion of the flare is axially registered with a portion of the thread, so that the end of the conduit is tightly compressed against the portion of the thread and sealed in the channel.

Not only is the Cox connector configured for use with only metallic conduit, but, significantly absent from Cox is a cylindrical channel and an outward flare which is axially registered with a portion of the thread. Claim 1 is clearly directed to patentable subject matter which is neither disclosed nor suggested in the references.

Claim 2, dependent from claim 1, further specifies that the flare extends to the cylindrical inner wall. This feature is clearly absent from the Cox reference and is not disclosed or suggested by any of the other references of record. Claim 2 is clearly allowable.

Claim 4 is allowable by virtue of its dependency from allowable claim 1 and by virtue of the inclusion of patentable subject matter.

Claim 5, dependent from claim 1, further specifies that the thread comprises a buttress thread, the Cox reference does not disclose a buttress thread. Attached hereto is a copy of a definition of buttress thread found in Dictionary of Technical Terms By Crispin, ©1970, The Bruce Publishing Company, page 61. A buttress thread is also illustrated in Design of Machine Element's, By Spotts, ©1961 Prentice-Hall, Inc., page 192 (attached). Claim 5 is clearly allowable.

Claims 6 through 12, dependent from claim 1 or intermediate claims, are clearly allowable in view of their dependency from an allowable base claim as well as by virtue of the inclusion of patentable subject matter.

Independent method claim 12 is directed to connecting a length of flexible non-metallic electrical conduit to an electrical junction box and includes the steps of providing a one piece molded thermoplastic connector having a smooth walled cylindrical sleeve at one end, surrounding at least a portion of the smooth walled sleeve with a concentric cylindrical wall to provide an annular cylindrical channel, providing a thread projecting radially inwardly from the

cylindrical wall into the channel, dimensioning the smooth walled sleeve and the cylindrical wall such that an end of a length of flexible nonmetallic electrical conduit can be received within the channel, inserting the smooth walled sleeve into an end of the conduit and sliding the conduit over the smooth walled sleeve and into the channel.

Significantly, the Cox reference does not teach or suggest a one piece molded thermoplastic connector having a smooth walled sleeve and an annular cylindrical channel and certainly does not suggest the step of sliding the conduit over the smooth walled sleeve and into the channel.

Claim 12 includes the further steps of seating the conduit within the channel by engaging a surface of the conduit with the thread and sealing the conduit by forcing an end portion of the conduit against the cylindrical wall. Cox does not include a cylindrical wall and does not effect sealing of conduit by forcing an end portion of the conduit against a cylindrical wall.

Claim 14, dependent from claim 12, specifies that the end portion of the conduit is forced against the cylindrical wall by providing the smooth walled sleeve with an outward flare adjacent an interior end of the channel. The Cox reference does not disclose a cylindrical wall and does not disclose the employment of an outward flare to force a portion of a conduit against a cylindrical wall. Claim 14 is clearly allowable.

Claim 15, dependent from claim 14, specifies that the outward flare overlies a portion of the thread. Such teaching is not found in the Cox reference and clearly constitutes patentable subject matter.

Independent claim 16 defines the invention as a liquid tight connector for non-metallic flexible electrical conduit comprising a one piece thermoplastic body having a cylindrical sleeve, a ferrule skirt overlying at least a portion of the sleeve and with the ferrule skirt including a cylindrical inner wall.

Claim 16 further specifies that the inner wall and the sleeve define a channel dimensioned to accommodate an end portion of a length of flexible nonmetallic electrical conduit and that a buttress thread projects radially inwardly from the inner wall into the channel and extends axially along the channel. Further, the buttress thread is specified as being dimensioned to engage the outer surface of the end portion of a selected length of conduit.

The Cox reference fails to disclose or suggest a skirt having a cylindrical inner wall or a buttress thread projecting radially inwardly from the inner wall. Claim 16 is clearly allowable.

Claims 17, 18 and 19 are dependent from claim 16, or intermediate claims and are clearly allowable.

Claim 20, dependent from claim 16, specifies that the buttress thread projects inwardly from the inner wall a distance of less than 1.0 mm.

It is due to the employment of a buttress thread that reduced thread height can be employed to minimize the torque required to tighten a length of conduit in the connector while still assuring a liquid tight seal having high tensile strength. The references do not suggest or disclose the employment of a buttress thread. Claim 20 is clearly allowable.

Claim 21, dependent from claim 16, specifies that the cylindrical sleeve is smooth walled. Claim 21 is clearly allowable in view of its dependency from claim 16 and further in view of the inclusion of patentable subject matter.

Claim 22, dependent from claim 25, specifies that the buttress thread projects radially inwardly from the inner wall of the ferrule skirt a distance of less than 1.0 mm. This claim is clearly allowable for the reasons set forth with respect to claim 20.

In view of the foregoing, it is respectfully submitted that all claims remaining in this application are clearly allowable.

WHEREFORE, reconsideration and early allowance are earnestly solicited.

Dated: New York, New York
May 6, 2005

Respectfully submitted,

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By_____
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DICTIONARY
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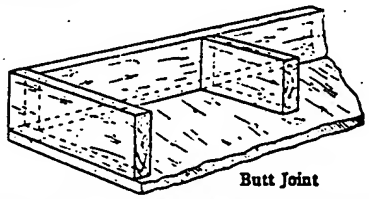
butt joint (*Arch. and Woodwk.*) Where the ends of two pieces of timber come together without overlapping.



Butt Joint

butt mi'ter (*Sheet-Met. Wk.*) A miter joint in which the pieces to be joined do not overlap.

but'ton ma-chine' (*Uphol.*) A small, hand-operated machine equipped with upper and lower dies. It may be used for attaching buttons or, by changing the attachments, may be used for attaching snap fasteners, eyelets, etc.

but'ton-wood. (See SYCAMORE.)

butt ram'ming (*Fdry.*) Ramming done with the butt or large round end of the rammer.

but'tress, fly'ing (*Arch.*) A detached buttress or pier of masonry at some distance from a wall and connected thereto by an arch or a portion of an arch.

but'tress thread (*Mach.*) A screw thread which is triangular in section but which has one face at right angles to the axis of the screw, the second face only being sloped. Used in cases where excessive shock must be absorbed, as in the breech block of a cannon.

Buttress Thread

butt weld'ing (*Forg. and Shopwk.*) A weld in which the two pieces to be connected do not overlap but are welded directly at their ends; a common method of welding rods by an electric process.

buzz'er (*Elec.*) An electric call signal which makes a buzzing noise caused by the rapid vibrations of the armature. It operates on the same principle as the vibrating bell.

buzz saw (*Woodwk.*) A name often applied to a circular saw.

by'-pass (*Plumb.*) Any method by which water may pass around a fixture, appliance, connection, or length of pipe. Sometimes incorrectly applied to a connection between a drain pipe and a vent pipe which allows sewer air to enter the building.

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Design of Machine Elements

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thread, shown in Fig. 5-1(b), is standard in Great Britain, but is being replaced by the Unified Thread.

For lead screws and power transmission the Acme screw shown in Fig. 5-1(c) is in wide use. It has an included angle of thread of 29°. The standard proportions of the American National Pipe[2] Thread are given in Fig.

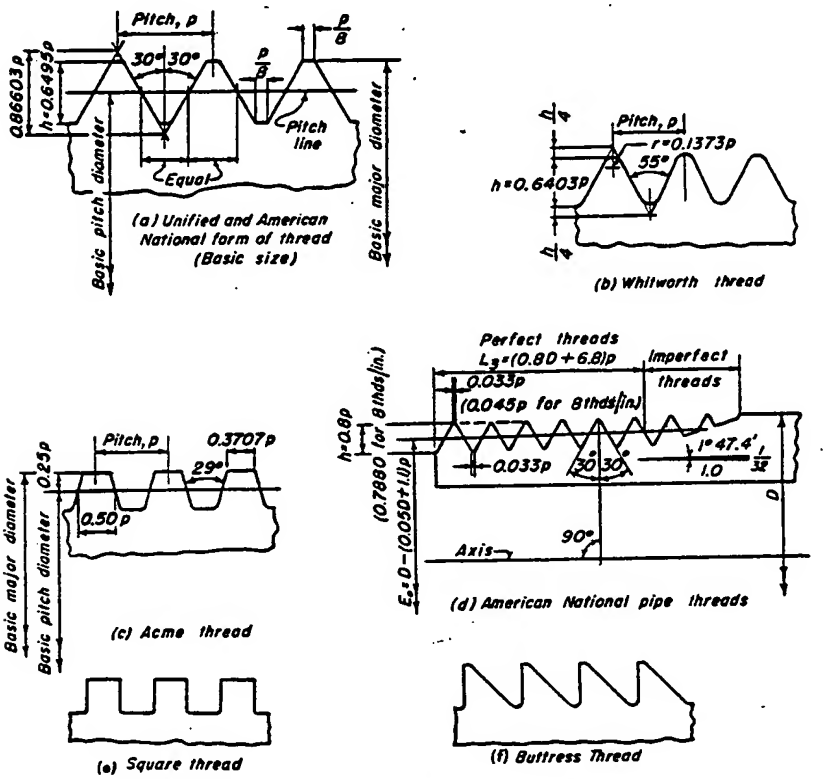

Fig. 5-1. Standard types of screw threads.

5-1(d). The taper, together with the smaller flat at crest and root, assists in producing a fluid-tight joint. Square and buttress threads shown in Figs. 5-1(e) and (f) are used to a limited extent for power transmission.

If an imaginary cylinder, coaxial with the screw, intersects the thread at the height which makes the width of thread equal to the width of space, the diameter of this cylinder is called the *pitch diameter* of the screw. See Fig. 5-1(a). The distance measured parallel to the axis from a point on one thread to the corresponding point on the adjacent thread is called the *pitch*. A screw made by cutting a single helical groove on the cylinder is

[2] See reference 2, Part II, Bibliography.